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(54) Antistatic composition for  
synthetic textile materials

(57) An antistatic composition for treating synthetic textile materials, in particular articles of clothing produced therefrom, comprises a quaternary ammonium surfactant in admixture with a polyoxyethylene alkylamine non-ionic surfactant. For ease of use, the surfactant mixture is preferably dissolved in an organic solvent and the solution packaged under pressure in an aerosol container with an inert propellant.

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## SPECIFICATION

### Antistatic composition for synthetic textile materials

5 This invention relates to an antistatic composition which is of use in reducing or preventing the build-up of static electricity on textile materials formed from synthetic fibres, such as polyamide and polyester materials.

10 One of the disadvantages of the use of synthetic fibres in the production of clothing and furnishings is that textile materials formed from synthetic fibres are prone to accumulate electrostatic charges because of their good insulating properties. This can give rise to difficulties both during manufacture of synthetic textile materials and also during their use, for example ladies' slips and petticoats produced from nylon material tend to ride-up due to static electricity.

One known method of controlling electrostatic charges on synthetic textiles has been the application thereto of an antistatic agent and for this purpose, cationic surface active agents, particularly quaternary ammonium surfactants such as triethanolamine oleate, have been used. However such antistatic agents are not particularly effective and leave much to be desired.

I have now surprisingly found that if a quaternary ammonium surfactant is applied, preferably in the form of a spray, in conjunction with a non-ionic surfactant, in particular a polyoxyethylene alkylamine, a synergistic effect is obtained which greatly enhances the antistatic effectiveness of the quaternary ammonium compound.

Thus in accordance with the present invention, there is provided an antistatic composition for treating synthetic textile materials, which comprises a quaternary ammonium surfactant in admixture with a polyoxyethylene alkylamine non-ionic surfactant.

45 The antistatic composition of the invention will advantageously be applied, for example, to an article of clothing made from a synthetic textile material either after washing or prior to use and hence in a preferred embodiment of the invention, the antistatic composition will be packaged under pressure in a suitably sized aerosol container using an inert gaseous or vaporised propellant, generally a fluorinated hydrocarbon, in a manner known *per se*.

55 The quaternary ammonium surfactant and the non-ionic surfactant will normally be dissolved together in a suitable organic solvent, preferably in alcohol, e.g. ethyl alcohol or isopropyl alcohol, in proportions ranging from 20 to 60% by weight, preferably about 40%, of the quaternary ammonium surfactant and from 40 to 80% by weight, preferably about 60%, of the non-ionic surfactant. The resulting solution may contain from 1 to 5% by weight of the surfactant mixture.

Quaternary ammonium surfactants which can be used in producing the antistatic composition of the invention include dimethyldicoco-ammonium chloride, trimethylcoco-ammonium chloride, trimethyloleyl-ammonium chloride, trimethyltallow-ammonium chloride, dimethyl-H-tallow ammonium chloride, trimethyloleyl- and dimethyldicoco-ammonium chloride, trimethyltallow- and dimethyldicoco-ammonium chloride, trimethylhexadecyl-ammonium chloride, trimethyloctadecyl-ammonium chloride, N,N,N', N',N'-pentamethyl-N-tallow-1, propanediammonium dichloride, dimethyltetradecylbenzyl-ammonium chloride, dimethylcocobenzyl ammonium chloride, dimethyl-H-tallow-benzyl-ammonium chloride, didecyltrimethyl-ammonium chloride, dialkyldimethylammonium chloride, methylbis (2-hydroxyethyl) cocoammonium chloride, methylpolyoxyethylene (15) cocoammonium chloride, and methylbis (2-hydroxyethyl)oleylammonium chloride.

Polyoxyethylene alkylamines which can be used as the non-ionic surfactant in producing the antistatic composition of the invention include polyoxyethylene (15) cocoamine, bis (2-hydroxyethyl) cocoamine, polyoxyethylene (5) cocoamine, polyoxyethylene (10) cocoamine, bis(2-hydroxyethyl) tallowamine, polyoxyethylene (5) tallowamine, polyoxyethylene (15) tallowamine, polyoxyethylene (40) tallowamine, bis (2-hydroxyethyl)-H-tallowamine, bis (2-hydroxyethyl) tallow/oleylamine, bis (2-hydroxyethyl) oleylamine, polyoxyethylene (5) oleylamine, polyoxyethylene (5) octadecylamine, polyoxyethylene (50) octadecylamine, N,N',N'-tris (2-hydroxyethyl)-N-tallow-1, 3-diaminopropane N,N',N'-polyoxyethylene (10) N-tallow-1, 3-diaminopropane, and N,N',N'-polyoxyethylene (15) N-tallow-1, 3-diaminopropane.

The following Example illustrates the invention.

### EXAMPLE

A mixture comprising 40% by weight of dimethyldicoco-ammonium chloride and 60% by weight of polyoxyethylene (15) cocoamine was dissolved in 70% w/v industrial alcohol to form a 1% by weight solution of the surfactant mixture. The resulting solution was then filled into an aerosol container under pressure in a known manner.

120 The resulting aerosol product was used to apply a spray of the antistatic composition on to a ladies' slip made of nylon fabric. The treated slip was remarkably free from static electricity in use and did not ride-up as in the case of the untreated slip or the slip treated with only the quaternary ammonium surfactant.

In addition to its use for treating clothing articles made from synthetic textile materials, the antistatic composition of the invention

may also be of use in treating, for example, curtains or carpets made wholly or partly from synthetic textile material.

## 5 CLAIMS

1. An antistatic composition for treating synthetic textile materials, which comprises a quaternary ammonium surfactant in admixture with a non-ionic surfactant selected from poly-oxyethylene alkylamines.
2. A composition as claimed in Claim 1, wherein the composition comprises from 20 to 60% by weight of the quaternary ammonium surfactant and from 40 to 80% by weight of the non-ionic surfactant, based on the total weight of the surfactants.
3. A composition as claimed in Claim 1 or 2, wherein the surfactants are dissolved in an organic solvent to form a solution.
4. A composition as claimed in Claim 3, wherein the organic solvent is an alcohol.
5. A composition as claimed in Claim 3 or 4, wherein the solution of the surfactants is packaged under pressure in an aerosol container using an inert propellant.
6. An antistatic composition substantially as described in the foregoing Example.

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